AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application.

1.   (Currently Amended) A method for fitting golf equipment, comprising:

in a swing module, collecting swing data from strain gauges related to [[the golfer's swing]] how a golfer swings a golf club, the golf club comprising a shaft and a club head, the swing data comprising a load time, load pattern, peak load, swing ramp, and ramp potential or a combination of at least some of these paramaters;

determining if the golfer's swing technique should be modified based at least in part on the collected swing data;

when it is determined that the golfer's swing technique should be modified, then using the swing data to correct the swing flaws; and

when it is determined that the golfer's swing technique should not be modified, then

in a launch module, monitoring how the golfer launches a golf ball using [[a particular]] the golf club [[to obtain]] by obtaining launch data from a launch monitor including a launch angle, velocity, and spin rate; [[and]]

in the launch module, using the received launch data to optimize a launch angle, velocity, and spin rate relative to each other based on non-linear relationships between the launch angle, velocity, and spin rate;

iteratively changing a combination of characteristics of at least one of the shaft and the club head until the optimized launch angle, velocity, and spin rate are achieved; and

in the launch module, obtaining launch data from the launch monitor related to how the golfer launches a golf ball using the golf club with the changed characteristics

~~changing one or more aspects of the golf club in order to change any of the launch angle, velocity and spin rate so as to achieve an optimal ball flight characteristic for the given golf club~~.

2.   (Currently Amended) The method of claim 1, further comprising collecting information related to the current status of the golfer's game[[ability]] and using it to ~~provide swing instruction to the golfer, when it is determined that~~ determine whether the golfer's swing technique should be modified.

3.   (Currently Amended) The method of claim 2, collecting data related to the golfer's current golf equipment, and using it to determine if the golfer's [[swing technique]] golf equipment should be modified.

4.   (Original) The method of claim 3, wherein current golf equipment data comprises shaft flex, lie angle, and loft for at least some of the golfer's current golf clubs.

5-9.   (Cancelled)

10.   (Withdrawn) The method of claim 1, further comprising ~~selecting~~ changing a ~~new~~ shaft length for the golf club based at least in part on the collected launch data, in order to achieve an optimal ball flight.

11.   (Withdrawn) The method of claim 10, further comprising collecting data related to how the golfer's swing launches a golf ball with the new shaft length and specifying golf equipment based on the new shaft length~~collected swing data and launch data collected for the new shaft length~~.

12.   (Withdrawn) The method of claim 1, further comprising ~~selecting~~ changing a ~~new~~ shaft weight for the golf club based at least in part on the collected launch data, in order to achieve an optimal ball flight.

13. (Withdrawn) The method of claim 12, further comprising collecting data related to how the golfer's swing launches a golf ball with the new shaft weight and specifying golf equipment based on the ~~new shaft weight~~collected swing data and launch data collected for the new shaft weight.

14. (Withdrawn) The method of claim 1, further comprising ~~selecting~~ changing a ~~new~~ shaft material for the golf club based at least in part on the collected launch data, in order to achieve an optimal ball flight.

15. (Withdrawn) The method of claim 14, further comprising collecting data related to how the golfer's swing launches a golf ball with the new shaft material and specifying golf equipment based on the ~~new shaft material~~collected swing data and launch data collected for the new shaft material.

16. (Withdrawn) The method of claim 1, further comprising ~~selecting~~ changing a ~~new~~ shaft tip size for the golf club based at least in part on the collected launch data, in order to achieve an optimal ball flight.

17. (Withdrawn) The method of claim 16, further comprising collecting data related to how the golfer's swing launches a golf ball with the new shaft tip size and specifying golf equipment based on the ~~new shaft tip size~~collected swing data and launch data collected for the new shaft tip size.

18. (Withdrawn) The method of claim 1, further comprising ~~selecting~~ changing a ~~new~~ shaft torque for the golf club based at least in part on the collected launch data, in order to achieve an optimal ball flight.

19. (Withdrawn) The method of claim 18, further comprising collecting data related to how the golfer's swing launches a golf ball with the new shaft torque and specifying golf equipment based on the ~~new shaft torque~~collected swing data and launch data collected for the new shaft torque.

20. (Currently Amended) The method of claim 1, wherein the characteristic of the shaft that is changed is the ~~further comprising changing a~~ grip

~~for the golf club based at least in part on the collected launch data, in order to achieve an optimal ball flight~~.

21.   (Previously Presented) The method of claim 20, further comprising collecting data related to how the golfer's swing launches a golf ball with the new grip and specifying golf equipment based on the new grip.

22.   (Withdrawn) The method of claim 1, further comprising ~~selecting~~ changing a ~~new~~ grip weight for the golf club based at least in part on the collected launch data, in order to achieve an optimal ball flight.

23.   (Withdrawn) The method of claim 22, further comprising collecting data related to how the golfer's swing launches a golf ball with the new shaft grip weight and specifying golf equipment based on the new shaft grip weight~~collected swing data and launch data collected for the new grip weight~~.

24.   (Withdrawn) The method of claim 1, further comprising ~~selecting~~ changing a ~~new~~ club head center of gravity for the golf club based at least in part on the collected launch data, in order to achieve an optimal ball flight.

25.   (Withdrawn) The method of claim 24, further comprising collecting data related to how the golfer's swing launches a golf ball with the new ~~shaft~~ club head center of gravity and specifying golf equipment based on the new club head center of gravity~~collected swing data and launch data collected for the new club head center of gravity~~.

26.   (Withdrawn) The method of claim 1, further comprising ~~selecting~~ changing a ~~new~~ ball spin characteristic based at least in part on the collected launch data, in order to achieve an optimal ball flight.

27.   (Withdrawn) The method of claim 26, further comprising collecting data related to how the golfer's swing launches a golf ball with the new ~~shaft~~ ball spin characteristic and specifying golf equipment based on the new ball

spin characteristic ~~collected swing data and launch data collected for the new ball spin characteristic~~.

28. (Withdrawn) The method of claim 1, further comprising ~~determining the~~ changing a lie angle for the golf club, in order to achieve an optimal ball flight~~at least some of the golfer's current clubs and specifying golf equipment based on the collected swing data and launch data and the determined lie angles~~.

29. (Previously Presented) The method of claim 1, further comprising capturing images of the golfers swing and using the images to provide instruction to the golfer, when it is determined that the golfer's swing technique needs to be modified.

30.-39. (Cancelled).

40. (Withdrawn) A golf equipment fitting system, comprising:

a launch module configured to collect launch data related to how a golfer's swing launches a golf ball and to derive launch parameters for the golfer's swing based on the collected launch data;

a shaft module configured to collect swing data related to the golfer's swing and to derive swing parameters for the golfer's swing based on the collected swing data; and

a swing module configured to capture images of the golfer's swing in order to aid in analysis of the golfer's swing.

41. (Withdrawn) The golf equipment fitting system of claim 40, further comprising a color camera coupled with the launch module, wherein the launch module is configured to collect launch data related to how the golfer's swing launches a golf ball marked with color markings using the color camera.

42. (Withdrawn) The golf equipment fitting system of claim 41, wherein the launch module is configured to convert images of the color markings

on the golf ball captured by the color camera into spin, speed, and launch angle data.

43. (Withdrawn) The golf equipment fitting system of claim 40, wherein the collected launch data comprises data related to the spin of a golf ball hit by the golfer.

44. (Withdrawn) The golf equipment fitting system of claim 40, wherein the collected launch data comprises data related to the speed of a golf ball hit by the golfer as the golf ball leaves the face of a club swung by the golfer.

45. (Withdrawn) The golf equipment fitting system of claim 40, wherein the collected launch data comprises data related to the launch angle of a golf ball hit by the golfer as the golf ball leaves the face of the club swung by the golfer.

46. (Withdrawn) The golf equipment fitting system of claim 40, wherein the launch module is further configured to derive ball flight characteristics based on the collected launch data.

47. (Withdrawn) The golf equipment fitting system of claim 46, further comprising a display, and wherein the launch module is further configured to display information related to the derived ball flight characteristics.

48. (Withdrawn) The golf equipment fitting system of claim 47, wherein the derived ball flight characteristics comprise carry distance, total distance, and height characteristics.

49. (Withdrawn) The golf equipment fitting system of claim 40, wherein the launch module is further configured to average collected data for a plurality of swings.

50. (Withdrawn) The golf equipment fitting system of claim 40, further comprising a wireless receiver coupled with the shaft module, the wireless receiver configured to receive the swing data.

51. (Withdrawn) The golf equipment fitting system of claim 40, wherein the shaft module is further configured to derive a load time for the golfer's swing based on the collected swing data.

52. (Withdrawn) The golf equipment fitting system of claim 40, wherein the shaft module is further configured to derive a load pattern for the golfer's swing based on the collected swing data.

53. (Withdrawn) The golf equipment fitting system of claim 50, wherein the shaft module is further configured to derive a ramp potential for the golfer's swing based on the collected swing data.

54. (Withdrawn) The golf equipment fitting system of claim 50, wherein the shaft module is further configured to derive a load time, a load pattern, and a ramp potential based on the collected swing data and to derive shaft flex based on the derived load time, load pattern, and ramp potential.

55. (Withdrawn) The golf equipment fitting system of claim 40, further comprising a display, wherein the shaft module is configured to display information related to the collected swing data on the display.

56. (Withdrawn) The golf equipment fitting system of claim 55, wherein the shaft module is configured to display the information in a graphical format.

57. (Withdrawn) The golf equipment fitting system of claim 50, wherein the shaft module is configured to derive a peek deflection associated with the golfer's swing based on the collected swing data.

58.   (Withdrawn) The golf equipment fitting system of claim 50, further comprising a video system coupled with the swing module, the video system configured to capture the images of the golfer's swing and provide them to the swing module.

59.   (Withdrawn) The golf equipment fitting system of claim 58, further comprising memory coupled with the swing module, the memory configured to store the captured images.

60.   (Withdrawn) The golf equipment fitting system of claim 59, further comprising a display, wherein the swing module is configured to display the captured images on the display.

61.   (Withdrawn) The golf equipment fitting system of claim 59, wherein the swing module is further configured to freeze the display of the images, fast forward the display of the images, or rewind the display of the images.

62.   (Withdrawn) The golf equipment fitting system of claim 40, further comprising an operating system configured to allow a user to access the launch module, shaft module, and swing module as required to achieve an optimum fitting.

63.   (Withdrawn) The golf equipment fitting system of claim 62, further comprising a display, and wherein the launch module is configured to display launch information on the display, the shaft module is configured to display swing information on the display, and the swing module is configured to display images of the golfer's swing on the display.

64.   (Withdrawn) The golf equipment fitting system of claim 63, wherein the operating system is further configured to allow a user to switch between information displayed by the launch module, shaft module, and swing module, as required in order to achieve an optimum fitting.

65.   (Withdrawn) The golf equipment fitting system of claim 62, wherein the operating system is configured to allow a user to input information related to the equipment presently being used by the golfer as part of the fitting process.

66.   (Withdrawn) The golf equipment fitting system of claim 62, wherein the operating system is configured to allow a user to generate a report that includes information related to recommended equipment parameters for the golfer as determined by the launch module and shaft module.

67.   (Withdrawn) A method for fitting a golfer with a golf club, comprising:

providing a plurality of golf club heads, each of the plurality of golf club heads comprising a portion of a quick disconnect system;

providing a plurality of golf club shafts, each of the plurality of golf club shafts comprising a mating portion of the quick disconnect system;

determining a baseline configuration for a golf club for use by the golfer, the baseline configuration comprising golf club head parameters and golf club shaft parameters;

selecting a golf club head from the plurality of golf club heads based on the golf club head parameters;

selecting a golf club shaft form the plurality of golf club shafts based on the golf club shaft parameters;

forming a golf club from the selected golf club head and the selected golf club shaft using the quick disconnect system;

monitoring how the golfer launches a golf ball with the golf club; and

selecting at least one of a new golf club head ~~form~~ from the plurality of golf club heads and a new golf club shaft from the plurality of golf club shafts based on how the golfer launches the golf ball;

forming a new golf club from the newly selected golf club head
and newly selected golf club shaft using the quick disconnect system; and

monitoring how the golfer launches a golf ball using the new golf
club<u>, wherein monitoring how the golf club launches a golf ball comprises
monitoring the spin, velocity, and launch angle imparted to the golf ball by
the golfer using the golf club, the new golf club head or golf club shaft
being selected based on the monitoring in order to optimize a launch
angle, velocity and spin rate relative to each other by determining an
appropriate velocity based on the launch angle or spin rate.</u>

68.   (Withdrawn) The method of claim 67, wherein a launch
monitor is used to monitor how the golfer launches the golf ball.

69.   (Withdrawn) The method of claim 67, wherein the steps
are repeated until an optimal launch of the golf ball is achieved.

70.   (Cancelled).

71.   (Withdrawn) The method of claim ~~70~~<u>69</u>, wherein optimal
launch is achieved when the golf club formed using the quick disconnect
system produces a combination of spin, velocity, and launch angle that
produces the longest and most accurate golf ball flight.

72.   (Withdrawn) The method of claim 71, wherein the spin,
velocity, and launch angle are monitored using a launch monitor.

73.   (Previously Presented) The method of claim 67, wherein
each of the plurality of golf club heads comprise configurable weights
configured to change the center of gravity of the golf club head, and
wherein forming a new golf club comprises configuring the golf club head
configurable weights.

74. (Withdrawn) The method of claim 67, wherein the golf club head parameters include at least one of loft, center of gravity, and size.

75. (Withdrawn) The method of claim 67, wherein the golf club shaft parameters include stiffness, length, torque, and weight.

76. (Withdrawn) The method of claim 67, wherein the portion of the quick disconnect system included in each of the plurality of golf club shafts comprises a hosel attached to one end of the golf club shaft, and wherein the portion of the quick disconnect system included in each of the plurality of golf club heads comprises a bore in the golf club head comprises a bore in the golf club head configured to receive a hosel attached to one of the plurality of golf club shafts, and wherein forming a new golf club comprises inserting the hosel of a golf club shaft into the bore of a golf club head.

77. (Withdrawn) The method of claim 76, wherein the hosel further comprises threads configured to mate with a screw, and wherein the bore further comprises an access for a screw to mate with a hosel when the hosel is inserted in the bore, and wherein forming a new golf club comprises affixing the golf club shaft to the golf club head by screwing a screw into the hosel threads when the golf club shaft is inserted into the golf club head.

78. (Withdrawn) The method of claim 68, further comprising displaying information related to data produced by the launch monitor.

79. (Previously Presented) The method of claim 1, wherein determining if the golfer's swing technique should be modified based at least in part on the collected swing data, comprises determining whether

the load pattern for the golfer's swing includes a single crest pattern, a double crest pattern, or a flat line pattern, and wherein using the swing data to correct the flaws comprises using the swing data to determine appropriate modifications to the golfer's swing to produce an incline load pattern.

80.   (Withdrawn) The method of claim 1, further comprising correlating the load time, peak load, swing ramp, ramp potential or a combination of all or some of these parameters with a shaft flex measurement, and selecting a golf club based on the shaft flex measurement for use obtaining the launch data.

81.   (Withdrawn) The method of claim 80, further comprising using the launch data to fine tune the shaft flex measurement.

82.   (Withdrawn) The method of claim 81, wherein fine tuning the shaft flex measurement comprises changing the shaft flex for the golf club until a maximum velocity and consistent repeatability is achieved for an optimized combination of launch angle and spin rate.

83.   (Withdrawn) the method of claim 82, wherein the combination of the launch angle and spin rate can be optimized to achieve maximum distance, control, and consistency.

84.   (Withdrawn) The method of claim 1, wherein achieving an optimal ball flight characteristic comprises achieving maximum distance, control and consistency.

85.   (Withdrawn) The method of claim 1, wherein achieving an optimal ball flight characteristic comprises achieving a maximum spin rate for an optimized combination of velocity and launch angle.

86.   (Withdrawn) The method of claim 1, wherein achieving an optimal ball flight characteristic comprises achieving a maximum launch angle for an optimized combination of velocity and spin rate.

87.   (Previously Presented) The method of claim 1, further comprising selecting ~~wherein achieving an optimal ball flight characteristic comprises using~~ a maximum ceiling height to limit the launch angle, spin rate, or a combination thereof for a given velocity, and wherein optimizing the launch angle, velocity, and spin rate relative to each other based on non-linear relationships between the launch angle, velocity, and spin rate comprises matching velocity with a combination of launch angle and spin rate determined based at least in part on the maximum ceiling height.

88.   (Withdrawn) The method of claim 1, further comprising changing at least one of the loft, flanges, and bounce angles of the golf club based at least in part on the collected launch data in order to achieve an optimal ball flight for the golf club.

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